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Addendum

Contribution by farmers**

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I. Introduction

1. All the issues being addressed by the Commission on Sustainable Development at its sixteenth session are closely linked to the sustainability of agriculture and to the livelihood of farmers. Thus the development of agriculture is an essential driving force for both poverty reduction and for rural development. Agricultural production practices are a key factor in the sustainable management of natural resources, since farmers are the custodians of much of the Earth's land and freshwater resources. Nowhere are these issues felt more acutely than in Africa and small island developing States. The Farmers' Group is therefore very pleased to see that agriculture is back on the agenda of the Commission, to review progress and measure challenges and obstacles for the first time since the eighth session of the Commission.

2. The *World Bank Development Report 2008*, the first on agriculture since 1982, highlights the importance of agricultural development as key to reducing poverty and as an engine for economic growth and rural development. The World Bank report rightly notes that while 75 per cent of the world's poor live in rural areas and depend on agriculture, only 4 per cent of overseas development assistance and 4 per cent of the budgets of Governments of Africa go to agriculture. Farmers think that this is an unsustainable situation. This trend should be reversed; agriculture should be given the priority it deserves so that it can fulfil its potential in sustainable development.

3. On an economic level, agricultural productivity in many parts of the world has increased owing to technological improvements. New actors are emerging in the form of an agri-food system dominated by multinational enterprises, which can source raw material and sell products any where in the world. This development has been facilitated by both technological changes and policy measures that promote free movement of services and capital.

4. In spite of these changes, food insecurity still remains a huge challenge (more than 800 million people remain food insecure). High population growth and increasing income growth and energy needs are the main drivers of this trend. This puts additional pressure on natural resources, with land and water as main assets for farmers being put under pressure and becoming increasingly scarce. As a result, commodity stocks, such as cereals, are at their lowest levels in 30 years, and commodity prices have risen sharply. Energy supply shortages have led to a peak in fossil fuel prices, and increased production of biofuels using agricultural commodities is one response.

5. Agricultural development and environmental protection have become tightly linked. All over the world, climate variability, associated with climate change resulting from human actions, is leading to an increase in the frequency and intensity of floods, droughts and desertification.

6. This situation leads to a multifaceted unsustainability on the social, economic and environmental levels. The solution to this problem lies in the implementation of a new agricultural model in which farmers contribute as real entrepreneurs, be it through the development of more sustainable agricultural practices to manage water in an efficient way, to fight desertification and drought through sustainable land management techniques, and by getting organized in the marketplace and

developing high-quality products in order to respond to increasing consumer demand.

7. Nevertheless, farmers and agriculture are faced with several challenges which urgently need to be overcome. These challenges include: attracting investments in agriculture for rural development, in particular in arid and semi-arid zones which are most affected by desertification and drought; raising awareness of the importance of environmental protection; creating adequate rural services to serve rural communities; improving the livelihoods of farming families through returns from the market and rewards for services rendered to nature in the form of stewardship programmes.

II. Challenges and main issues for farmers

8. Given the context described above, one of the biggest challenges for sustainable agriculture and rural development is the setting up of a farming approach which encompasses environmental sustainability and the provision of better incomes for farmers, including reduced costs of production, higher quality of products and improved yields. The balance between environmental, economic and social development, namely the three pillars of sustainability, is thus critical if the Millennium Development Goals to reduce poverty and hunger are to be met.

A. Agriculture

1. A new approach to agriculture and rural development

9. The situation of rural populations and farmers has not improved significantly because most of the existing agricultural strategies are not working well. However, recently there has been a shift in global policy thinking towards the recognition of agriculture and rural development as the drivers of economic development. This means that there is a need for a new approach to agriculture and rural development based on the productivity, profitability and sustainability of farmers, in particular smallholders. Any successful agricultural and rural development strategy requires investment in small farm agriculture so that subsistence farmers become small-scale entrepreneurs and not migrants to overcrowded cities. At the same time, this new approach has to redefine the role of the different stakeholders, mainly public authorities, farmers' organizations, the private sector and the scientific community. For the past few years, progress has been made worldwide in terms of participatory policy regarding non-State actors, including farmers. The latter are becoming better organized in the form of cooperatives and unions, and so are better able to make their voices heard in decision-making and acquire profitable access to markets. However, many farmers' organizations, in particular in developing countries and particularly in Africa, still need capacity-building to achieve this goal. This represents one of the biggest challenges facing the new approach to sustainable agriculture and rural development.

2. Reducing the cost structure of agriculture: a key to farmers' profitability

10. The recent upward trend in commodity prices is perceived as a positive development for most farmers. A steady and sustained increase in commodity prices

should enable farmers to sustain agricultural production and improve their productivity and income, as well as the vitality of rural communities after 40 years of depressed agricultural prices. This new situation opens up opportunities for investment, especially in developing countries. Prices for meat and dairy products also need to rise in order to cover the higher prices for animal feed that present severe financial difficulties for livestock farmers. Nevertheless, farmers are well aware of the adverse effects on consumers of higher foods prices and the need for Governments to address this problem.

11. This positive trend should not mask a significant burden borne by farmers: agricultural costs. Farmers' profitability does not depend solely on the level of commodity prices. Keeping production costs low is also a key to profitability and, therefore, the sustainability of agriculture. Among those costs are those related to meeting government regulations, certification and the conservation of natural resources.

Costs related to government regulations

12. To address the costs related to meeting and implementing government regulations, estimated at over 360 million euros per year, in 2006 the Federation of Swedish Farmers published a document entitled "Why make it so difficult". The document demonstrates that the rural sector in Sweden has to deal with 400 different regulations and more than 800 documentation obligations. The Federation of Swedish Farmers has invited its Government to set a strategy to reduce the burden of complicated rules and regulations in the agricultural and forestry sector by 40 per cent by 2010.

Costs related to meeting high food safety and environmental standards

13. Farmers are required to face higher and higher standards, for example, for animal welfare or the environment, and increasing demands for documentation and traceability from risk managers, both in Government and in the retail sector. These requirements involve significant extra costs which often fall disproportionately on farmers compared with other actors in the food supply chain.

Environmental costs

14. Getting farmers to change and adapt their farming practices to protect the environment induces extra costs. Farmers living in areas where food security and resources are scarce lack financial capital and often cannot afford to invest in new sustainable practices. For example, switching from traditional till agriculture to a more environmentally friendly farming practice, such as conservation agriculture, may result in decreased crop yields for the first few seasons while farmers perfect their techniques. However, in the long run, the gains in the form of climate change mitigation and productivity of the land will pay off. Unfortunately, there is often a conflict between long-term investment in sustainable agriculture practices and short-term food security.

15. Farmers are unable to bear those costs on their own. They need incentive measures to be able to share the costs. There is also a significant potential for increased costs for farmers related to taxation measures that are enacted to meet climate targets.

Certification costs

16. Farmers worldwide are involved in a wide variety of voluntary certification schemes ranging from environmentally friendly to quality assurance schemes. Most certification schemes originating from developing countries are for export markets. Therefore, demand is driven by developed countries. Certification schemes certainly represent a way for farmers worldwide to diversify their outlets and access new markets, even though they represent niche markets with fierce competition.

17. Farmers' involvement in those schemes induces additional costs that are due mainly to high administrative costs, investments in new equipment and audits on the farm. Another important barrier for farmers is their limited bargaining power, because those products are directed to a specific segment of consumers. Also, additional costs related to compliance with these schemes represent a disincentive for small-scale farmers.

18. Finally, many farmers feel that the prices received from those products are not high enough to cover production costs. Farmers need a balance between costs and revenue to make it worthwhile for them to continue farming.

3. Access to appropriate technologies

19. In developing countries, facilitating access to appropriate technologies and upgrading existing ones is critical for the sound management of natural resources, including land and water. For example, to successfully combat desertification and drought, adapted farming technologies are needed for dry land farmers to maximize earnings from their lands while protecting them and capitalizing on the presence of basic infrastructure and support services. Support from developed countries is essential, especially in terms of knowledge-sharing and transfer of technology.

B. Rural development

20. A successful rural development strategy needs to look at all assets of rural development, namely, natural, social, physical human and financial capital. Rural development must be centred on people, must have an integrated territorial perspective and must involve long-term strategies for which adequate resources are earmarked.

1. Providing adequate services and infrastructure in rural areas

Inadequate rural services

21. Often, rural areas do not enjoy the same level of services as those available in cities. Inadequate access to such services as education, health, banking and credit facilities, and electricity, water and transport infrastructure represents a serious impediment to agriculture and rural development. This lack of support represents a cost on farm households.

22. In Nepal, despite many efforts to provide rural areas with adequate services, a weak institutional framework is holding back sustainable development in these areas. This weakness is the result of poor training and lack of empowerment of human resources. In order to carry on this development and make it sustainable, the issues of weak management capacity, lack of training on capacity and leadership

building, business knowledge and training on capacity-building and gender equality must be addressed.

Poor infrastructure

23. Rural infrastructure, for example water and irrigation systems, energy supply, roads, market information and telecommunications, remains inadequate in many developing countries. Such inadequacy is therefore a major constraint to competitiveness and the profitability of agriculture and rural development. This disinvestment is due to inadequate funding for and government withdrawal of the provision of needed infrastructure.

2. Creating rural employment

24. If rural areas are to become a driving economic force, jobs have to be created both in the agriculture and rural non-farm sectors. For this, a good investment climate needs to prevail, for example, through investing in infrastructure, linking the local economy to broader markets, providing services to functioning markets and linking farmers to the marketplace so that they can become real entrepreneurs.

3. Farmers' organizations and increasing farmers' market power

25. The globalization and liberalization of markets have led to the emergence of new players in the value chains for agricultural products. Demographic factors, particularly urbanization in developing countries, have influenced consumer preferences, which in turn have had an impact on domestic markets and supply chains. Parastatals have been replaced by multinationals and local private traders in the agricultural export trade and input distribution, while supermarkets and large-scale retailers are becoming increasingly important in both developed and developing countries. The role of other players, such as farmers' organizations, in assisting agricultural producers to improve market access and to enhance the bargaining position vis-à-vis suppliers has also grown.

26. The potential of farmers' organizations to provide economic benefit to their members is to a large extent determined by the institutional environment of the organizations — policies, rules and regulations. Therefore, proactive advocacy activities are needed in order to adjust the institutional environment to the farmers' needs.

27. The advocacy efforts of farmers' organizations tend to face two challenges:

(a) First, many policies related to the institutional environment in which farmers access agricultural markets are generic and do not consider the specific features of smallholder farming and their forms of economic organization. The adapted policies should include those related to competition and taxation, as well as risk mitigation mechanisms;

(b) Second, marketing strategies developed by farmers to cope with these challenges in the market are no longer feasible within the existing institutional environment. Farmers' organizations have to restructure and reposition themselves in this changing market system. Examples of practical experiences of other farmers' organizations in developing innovative institutional arrangements and policy initiatives that cope with the challenges of the modern agri-system are an important source of learning in that adaptation process.

The critical role of small scale farmers in developing countries

28. Smallholders are in an even more difficult position than other farmers. In most developing countries, smallholder farming is important for poverty reduction, food security and the rural economy more widely. The majority of the rural population in sub-Saharan Africa can be considered as smallholders. Their importance derives from their prevalence, their role in agricultural and economic development and the concentration of poverty in rural areas. Most smallholders are vulnerable to economic and climatic shocks and spread their risk by diversifying their sources of livelihood, which often include significant off-farm income. Complete subsistence or self-sufficiency rarely exists, as there is often some form of local market in which smallholders trade their surplus. But those markets are not very remunerative and offer limited opportunities for price negotiation. Finding and entering markets with better prospects is difficult.

4. Bioenergy, a promising tool for rural development

29. For farmers, bioenergy represents a new market and a way to diversify risk. Farmers in developed and developing countries see those benefits as an opportunity to keep expenditures on energy within the domestic economy.

30. Despite promising prospects, there is a need to analyse the real effect of bioenergy development on producers' incomes.

31. Sustainable energy sources are developing fast; yet, they have a low rate penetration into the agricultural sector because they represent challenges for farmers. These include: early adaptation of technologies; geographic location; high capital costs; and cost competitiveness with traditional sources of energy.

32. Farmers want to benefit from this promising outlet by becoming providers of value added products instead of producers of raw materials and buyers of energy. Farmer ownership is key for bioenergy production as a means of improving income and reaping some of the benefits that are going to large multinationals.

C. Land

1. Land, a critical asset for farmers

33. Secure land tenure arrangements for farmers are critical to the sustainable development of agriculture. They give farmers strong motivation to manage and protect the land through improved agricultural practices. Secure land tenure also provides collateral for farmers to obtain farm credit. Therefore, any rural development strategy has to include secure access to land for farmers (land titles), including for women farmers, who have a particular problem in this regard.

34. Soil condition is also a prerequisite to sustainability from both an environmental and an economic point of view, and underpins long-term sustainability and productivity of the land.

2. Limited access to and high concentration of land

Lack of clear legislation

35. In many countries, in particular in Africa and Latin America, land access and concentration is becoming an increased concern and a threat to the survival of farmers.

36. In the Democratic Republic of the Congo, farmers access land through either inheritance or purchase. This creates significant fragmentations of land distribution between large and very small landowners. Access to land is a way to social differentiation and is a source of poverty in rural areas. The inheritance system is complex and follows customary rules. The national law, which is inspired by European legislation, regulates land tenure, but is ignored by large portions of the farming community. This dual system engenders sociocultural, political and economic conflicts over land access and ownership in the country. Women farmers do not have as equal access to land as their male counterparts.

37. The Syndicat de défense des intérêts paysens, a regional farmers' organization in northern Kivu, provides a range of services to individual farmers to help them solve conflicts over access to land. Its main activities include: legislation support and advocacy of farmers' interests; training of advisers; translation of legislation into Swahili; and codification of customary tenure.

38. Therefore, action is needed to secure land titles for farmers, as the impact on farm activities and farmers' motivation is significant.

Intensive use and high concentration of land

39. The price of land is rising in many parts of the world which in turn leads to an intensification of its use thanks to technological changes. The sustainability of such practices, as observed in Uruguay and Argentina, must be questioned.

40. A handful of large enterprises and emerging new actors (often foreign investors as agricultural contractors) control the factors of production. This situation has generated a fundamental change in terms of market security, liquidity and uncertainty on investment planning. As a result, small- and medium-scale farmers have been pushed off their land.

D. Desertification

1. Desertification is a development issue

41. Combating desertification and land degradation is probably one of the most important challenges for the years to come. Land degradation in arid areas affects approximately 2 billion people living in arid zones, including in the North. Without fertile soil and without tools for sustainable land management, those living in these regions are unable to break out of the cycle of poverty.

42. The recognition of the link between poverty and land degradation during the World Sustainable Development Summit in Johannesburg in 2002 is encouraging. Furthermore, the geography of poverty often coincides with that of drought, desertification and land degradation.

43. Agriculture can be either an aggravating factor in desertification or a corrective factor resulting in improvement of the land. Desertification and food security are intrinsically linked. In fact, desertification is one of the causes of lack of food security, leading to socio-economic and political tensions. Farmers are among the first victims of the phenomenon of desertification, as natural resources, such as fertile topsoil, organic matter, plant cover and healthy crops, are the most severely affected by desertification.

44. The process of land degradation essentially affects arid land, and approximately 70 percent of the 5.2 billion hectares of arid land devoted to agriculture is degraded. For farmers, desertification is not a concept but a question of day-to-day food security. In the past, those responsible for development projects did not or hardly involved the people affected by the phenomenon of desertification in their projects to combat the problem. However, the local population, in particular farmers, often knows more about weaknesses in the ecosystem and holds information that is key in countering the effects of desertification.

45. There is little available information about farmers' experiences in combating desertification. It is therefore difficult to evaluate the real consequences of desertification in the agricultural sector. All the same, farmers are fighting the problem on a daily basis to ensure their own survival. Nevertheless, in addition to the use of appropriate techniques, efforts to combat desertification should be accompanied by integrated measures that encourage economic and social change and should be an integral part of the development process.

2. Combating desertification through strong farmers' organizations

46. Combating desertification is not just about adopting sustainable farming practices through innovative and adapted techniques. It is all about getting farmers and rural communities to turn dryland areas into real assets. For this change to happen, strong organized farmers and rural community groupings that will take their destiny in their own hands are needed. Dryland farmers can best capitalize on their limited resources by forming strong rural organizations that exercise sociopolitical and economic functions and provide various services (training, information and extension).

3. Marketing schemes as an effective way to combat desertification

47. Since dry lands are inherently less productive and fertile, the challenge lies in increasing the market value of crops to offset their lower productivity and higher costs of production. Dryland products can be differentiated from ordinary produce, and therefore marketed at a higher price through unique production and processing methods, attractive packaging and innovative marketing techniques. Contract growing or forward selling under mutually beneficial terms are prone to provide the security and incentive for farmers to invest and pursue the production of specific crops. However, given that the small scale and marginal levels of production can make farmers in these areas vulnerable to markets, climatic and other external factors, dry land farmers should be encouraged to diversify their crops and income sources. Rural livelihood programmes such as simple food processing and small-scale manufacturing, among others, are critical to supplement farm incomes. These programmes should incorporate sustainable and remunerative marketing schemes instead of stop-gap social welfare support activities.

4. Turning dry and degraded land areas into economic assets

48. Lack of investment and economic growth represent significant challenges. In order to convince policymakers to invest in agriculture and natural resource management in dry lands and degraded areas, it is necessary to translate the different impacts of natural resource management investments in monetary terms (that is, increase of the biomass, higher levels of water in wells and recapitalized land) and in documenting success stories. Relevant data should be compiled to convince policymakers on the economic benefits of regenerating the land. This will help break the image of drylands as being substandard and turn them into real economic assets.

E. Drought, water and climate change

Adapting to weather variability through risk management tools and insurance schemes

49. Climate variability brings widespread weather events that affect entire communities. Traditional insurance markets and informal insurance arrangements between farmers and community members in developing countries are inadequate to prepare for climate change. Farmers who try to self-insure themselves through the accumulation of assets, savings and access to credit may have just as much trouble at the onset of a crisis, as those measures are often insufficient and may be easily damaged. For example, at the onset of a flood, physical assets, such as property and land, may be damaged, while community financial aid will be stressed as a result of the widespread effects.

50. Risk-management tools are often lacking, in particular in the developing world, to support farmers in facing the effect of weather variability.

51. However, many farmers in developed countries benefit from such schemes in the form of insurance or safety nets. In Austria, farmers benefit from a mutual insurance association system by the name of Austria Hail Insurance. This system includes risk-management coverage for agricultural systems. Farmers pay 50 per cent of the insurance premium, and the remainder is provided by the provinces (25 per cent) and the Federal Government (25 per cent).

52. Following the drought in 2003, the European Union (EU) allowed national Governments to provide compensations for farmers who faced losses induced by the drought, within the limits set by EU regulations.

III. Review of implementation: analysis of progress and successful experiences

53. Farmers render a wide array of services to nature without being remunerated for doing so. These include: production of high-quality products, shaping attractive landscapes, provision of environmental services and maintenance of rural areas. Some countries have developed stewardship programmes to fill this gap.

A. Agriculture and rural development

1. Rural development as an engine of economic development

54. In Europe, rural areas have undergone significant changes. The promotion and development of rural areas make up the second pillar of the new Common Agricultural Policy. Rural development is important for promoting diversification and innovation in rural areas beyond agricultural activities as such. The LEADER programme is one of the EU structural funds designed to help rural communities to enhance the potential of their local regions. It encourages the implementation of integrated, high quality and original strategies for sustainable development. The LEADER programme contributes to rural employment, income improvement and the creation of new opportunities.

2. Women as the driving force for rural development

55. In developing countries, 80 to 90 per cent of the food supply is produced by women. Women are a critical factor in rural development, and their economic empowerment is essential to address poverty and food insecurity. However, women farmers are one of the most vulnerable groups, often lacking access to resources, land, water, education and training, credit and market opportunities. Their active involvement in decision-making processes is often lacking.

56. The Chambers of Agriculture in Austria, for example, have taken measures to improve women's participation in agriculture and rural development through specific training arrangements and targeted extension services.

57. The success of a rural development policy stems from the sharing of responsibility between farmers of both genders. This represents a real challenge.

3. Farmers deriving benefits from high-value market products

Direct marketing of local products

58. This concept is gaining importance, for example in Austria, where 21 per cent of the farmers take part in the direct marketing programme which promotes "the farmer's delicacies". These activities lead to building the capacity of all market partners involved, including farmers, innkeepers, butcher shops, trade and Alpine dairy farms.

59. Direct marketing of products presents the following benefits to the farmer: decreased risk, direct consumer contacts, production of specialized products and the promotion of regional identity.

Certification schemes

60. Farmers' involvement in certification schemes allows them to improve the quality and reliability of their products. Sometimes, certified products provide higher competitiveness against imported products, for example good agricultural practices certification and organic products.

61. Certification schemes are also providing farmers with an increased bargaining power in the food supply chain along with an improved relationship with buyers, processors and retailers. For some farmers in developing countries, getting involved

in certification schemes is a way to ensure market access (export markets mostly), as the production is often under contract, for example coffee producers in Uganda.

4. Linking farmers to the market for rural development and income generation

Enhancing the economic potential for improved incomes in dryland communities in Uganda: an integrated approach

62. The marketing of goods and services is difficult in Uganda since 80 per cent of the population lives in rural dry areas. The Uganda Cooperative Alliance created locally based area cooperative enterprises to fill the gap left by the collapse of cooperative unions in the 90s. The Uganda Cooperative Alliance designed a marketing channel that enables organized producers to take advantage of liberalization (of new products and markets). The system is rooted in the private sector, and it is designed in such a way that protection is provided to the producers because they are linked to different channels.

63. In the new cooperative system, four new institutions were designed to meet member needs in a changing environment. These include the Area Cooperative Enterprises formed by 5 to 10 producer cooperative societies within a geographical area. The Area Cooperative Enterprises act as brokers in providing services by using the capacity provided by input suppliers, private processors and producer buyers. This system integrates five players: savings and credit cooperatives (microfinance institutions), input dealers, Area Cooperative Enterprises, primary societies and the farmers.

64. After six years, this system has delivered positive results, that is easier availability of credit and other financial services (60 per cent of the loans advanced by the savings and credit cooperatives were for agriculture), higher producer prices (22-57 per cent higher than those selling out of the system), and increased food security (70 per cent of the farmers benefiting from the projects have three meals a day).

65. Through this integrated approach, farmers have been empowered with skills, bargaining power, affordable financial services and decent incomes.

Cooperatives maintain farmers' livelihoods

66. Agricultural cooperatives are significant economic and social actors. More than 800 million people around the world belong to agricultural cooperatives. They provide 100 million jobs worldwide, which is 20 per cent higher than the number of jobs provided by multinationals. Agricultural cooperatives provide a wide range of services to their members through: better prices for the purchase of agricultural consumables; economies of scale; provision of better market prices, and safe and high-quality food; and generation of added value throughout the value chain. Agricultural cooperatives in Uruguay, for instance, have been instrumental in bringing horizontal and vertical integration of small- and medium- scale farmers.

5. Payments to farmers for ecosystem services

67. Farmers need incentives to encourage them to use more environmentally friendly production techniques and thus to improve their ecological footprint. Environmental sustainability has to work for farmers and not only for Governments or society as a whole.

68. Governments in developed countries, as well as in some developing countries, have put in place stewardship programmes for farmers to reward them for: protecting and enhancing agricultural biodiversity through the adoption of more sustainable agricultural practices, for example land use, water management, carbon sequestration, sustainable use of energy sources and sustainable management of forests; valorizing marginal areas; and producing traditional species to prevent the loss of genetic resources.

Carbon exchange system benefits farmers in the United States of America

69. Farmers in the United States of America have developed a unique instrument in the form of a carbon credit programme, which allows them to earn income through agricultural conservation practices, such as no-till farming. By doing so, farmers can do more than save fuel, soil and water; they can earn money. The National Farmers Union of the United States of America has the approval of the Chicago Climate Exchange to aggregate carbon credits and sell them on the exchange on behalf of the producers.

Promoting payments for ecosystem services in developing countries: agroreforestation in the Philippines

70. Natural resources worldwide are under pressure, especially in fragile ecosystems that are located mostly in developing countries, which urgently need to be rehabilitated, for example arid zones. Given the lack of resources of Governments in most of those countries, farmers do not perceive the direct advantage of adopting sustainable production systems. However, some developing countries have made the effort to pay farmers for such services.

71. In the Philippines, local chapters were able to secure long-term leases and stewardship contracts from the Government to use logged over areas. With minimal technical assistance, they were able to reforest those areas at almost no cost to the Government. This approach is more sustainable than the typical approach, whereby Governments would pay private companies and non-governmental organizations to reforest barren areas, where little is done to sustain the trees once they have been planted and the contracted parties have been paid. In the case of community-based reforestation projects, farmers see the benefits of growing trees. All they need is to be given security over their lands, technology and planting materials.

6. Raising awareness of the importance of agriculture

72. Farmers' organizations are key players in raising awareness of their members of the importance of environmental protection and sustainability. This education process is critical if effective change in farmers' behaviour and rural communities is to occur. In Brazil, for example, the national farmer organization, the Brazilian Confederation of Agriculture and Livestock, has developed awareness-raising programmes on environmental protection aimed at providing training sessions to young farmers on the necessity to link agriculture and environmental protection. The Brazilian Confederation of Agriculture and Livestock is also actively involved in discussions with relevant ministries in the elaboration of legislative instruments to improve natural resource management.

The Australian National Farmers' Federation lobby campaign changes misconceptions on farmers and the environment

73. The National Farmers' Federation undertook an extensive lobby campaign aimed at getting the Government of Australia to implement and fund an environmental stewardship initiative. Indeed, stewardship — paying farmers to deliver environmental outcomes — has been a policy priority for the National Farmers' Federation since 1998.

74. The campaign aimed at inducing a major shift in public policy on two fronts; the perception of farmers as sound environmental managers, and breaking short-term government funding cycles to enter 15-year market-driven contracts with farmers.

75. Market research, political and environmental group engagement, membership cohesion and public repositioning of farming and the environment through media communication campaigns were pivotal in generating recognition of the modern environmental record of farming and leveraging this into support and action.

76. The National Farmers' Federation lobby campaign managed to overcome negative perceptions and misconceptions about farming's environmental credentials and established recognition of its responsible environmental management. It delivered up-to-date information on farmers' achievement in protecting the environment through sustainable agricultural practices.

Farm holidays and school on farm in Austria

77. About 8 per cent of Austrian farmers are involved in tourist activities. They offer tourist accommodations and make up one fifth of tourist enterprises. Two thirds of the farmers involved in tourism live in mountainous regions. Thus, farm holidays represent an important economic segment of the agricultural and tourist sectors and an important source of income for rural areas. The Austrian chambers of agriculture and the Ministry of Agriculture are involved in the provision of educational programmes for farm holiday entrepreneurs.

78. School on the farm has become a tool for many Austrian farmers to inform and educate teachers and pupils about farming. Recognition of the farm as a place to learn about nature and life, the promotion of agriculture as a way of life, and the promotion of the relationship among agriculture, food production and the environment, are among the main objectives of the schools, which have had a positive educational impact, while complementing the income for farmers and their families.

7. Farmers setting research priorities

79. For farmers, research findings should contribute to improving the livelihoods of their families and consequently to achieving the Millennium Development Goals. Research for development is fundamental to the modernization of agriculture and the improvement of the economic and health situation of rural people. Even though the system does not work in most countries, positive experiences exist worldwide.

80. In Argentina, the National Institute of Agricultural Technology includes representatives of the four main farmers' organizations within its governing structures. Their participation ensures that the work of the Institute is focused on

farmers' needs. The Institute also has a strong focus on extension to bring the results of its research to farmers' fields. In Uruguay, also, farmers' organizations are represented on the board of directors of the National Research Institute for Agriculture and on regional advisory committees and working groups. Farmers contribute to the funding of research through a small levy on farm products at the first point of sale. Such close cooperation between public research institutes and farmers' organizations has long been established in industrialized countries, such as Denmark, where the Agricultural Council is an integral part of the Danish research and extension system, with farmers also contributing to research through commodity levies. Such cooperation is relatively recent in Africa and still lacking in Asia.

81. It is critical that applied research systems open up to farmer participation at all levels to facilitate the adoption of and access to sustainable technologies and practices. Mobilizing political will around the involvement of farmers' organizations in setting research priorities and disseminating results to their members would be a significant step on the road to achieving the Millennium Development Goals.

B. Land, water, drought, desertification and climate change

1. Appropriate environmentally friendly agricultural practices to increase productivity

Combating desertification through agro-ecology

82. The agro-ecological approach seeks to achieve sustainable agricultural development through adopted techniques, taking into account environment and cultural aspects. Agro-ecology includes such agricultural practices as limited or zero-tillage, cultivation of plant cover, incorporation of plant residue in soil, and direct seeding of plants through plant cover. Those conservation techniques restore soil fertility, reduce pollution of water sources, increase the proportion of carbon retained in the soil and slow water and wind erosion.

83. Farmers worldwide often adopt those techniques for environmental and economic reasons. The zero-tillage technique has been tested in Cameroon and Haiti. A number of farmers, including wine producers in South Africa, use legumes to enrich and protect the soil. Intercropping is becoming more widespread and is used extensively in orchards and around other fruit trees, especially in Pakistan and Egypt, when the trees are young. In Guinea, peanuts and green beans are grown with potatoes. Corn is often grown with other types of crops, in particular in Madagascar, Benin, the Comoros and Côte d'Ivoire.

84. In Argentina, the technique of direct seeding has become widespread among farmers, as 70 per cent of the agricultural cultivated surface uses this system. Direct seeding is a cropping system that aims to improve soil and soil moisture conservation.

Combating desertification through agro-forestry

85. Agro-forestry combines and integrates agricultural and forestry methods to form an agro-ecosystem. Planting crops in woodlands where even livestock can graze allows for an optimum use of resources. Vegetation in forested areas thrives next to banana trees in the Comoros and cacao trees in Cameroon. Agro-forestry leads to an integrated, sustainable, productive and profitable management of soil

resources. In addition to contributing to soil amendment and the preservation of moisture, trees or bushes represent a source of energy. In Bangladesh, for example, farmers plant turmeric in between trees and, like farmers in the Caribbean, they plant young trees along roads and rivers. Agro-forestry is favoured by many farmers worldwide. In order to make known this practice and encourage its implementation, demonstrations and on-site visits are being organized in Kenya.

2. Participatory water management schemes

86. Water management remains an important concern for many farmers in the world. Integrated water resource management is being widely recognized as a promising possibility, going beyond the mere technical approach.

Water and soil conservation programme in Nicaragua

87. Over the past two decades, logging operations, the expansion of agricultural land and the indiscriminate use of chemical products, such as pesticides, herbicides and fertilizers, have seriously deteriorated the natural resource base, including water and land. Desertification has led primarily to significant soil erosion. In response to this situation, the National Union of Farmers and Ranchers initiated the programa campesino a campesino, an innovative programme offering small farmers various sustainable and economically viable technologies. The practices focused on tailor-made solutions for farmers using local resources and conditions. The programme seeks to encourage active participation by rural communities and the transfer of know-how, and proposes simple, inexpensive and effective practices. These techniques encourage the reuse of biological matter by limiting reliance on chemical inputs and other energy-intensive technologies. In addition, this approach makes it possible to reduce long-term production costs, although the projects are initially labour intensive.

Improving irrigation facilities: the case of Palestinian farmers

88. Palestinian farmers suffer from the lack of efficiency of their irrigation systems, which leads to significant water losses and to increased production costs and, in turn, to a decrease in their incomes.

89. To overcome this situation, the Palestinian Farmers Union has implemented a project with the support of French Development Cooperation. The objective was to demonstrate the usefulness of upgrading irrigation systems in terms of water savings and income improvement. The project benefited 50 pilot farms located in the largest irrigated perimeter in Jericho, and included a training programme targeting 100 agricultural technicians and 400 individual farmers. This has resulted in significant water savings (on average 36 per cent). It was decided to scale up this project and replicate it in other regions, but an expert study concluded there was a need for a strong water authority to change distribution systems in order for this replication to be sustainable. The experience of the Palestinian Farmers Union in organizing water users (including farmers) has proved essential to the success of this project.

Demand-driven water management: farmers in India acting as responsible users

90. In semi-arid areas in India, where water is scarce, farmers took the decision to grow fruits instead of water-consuming cereal crops and to measure rainwater on a daily basis. They also decided upon the timing of sowing and harvesting. These

decisions led to qualitative changes in farmers' lives. As a result, this responsible way of managing water resources has prevented the depletion of groundwater, has slowed down the drying of tube wells and has accelerated the process of recharging aquifers. These efforts, initiated by the farmers themselves, need to be replicated at the national level. With proper education and information, change can occur on a wider scale.

3. Sustainable land management programmes

LandCare, South Africa

91. The national LandCare programme is a community-based, government-supported natural resource management programme. The concept of LandCare was first developed in Australia and involves the participation of grass-roots community groups, native populations, landowners, and government institutions. The success of the programme is dependent mainly on the farming community, which is responsible for the identification, implementation and monitoring of the land base. LandCare in South Africa aims at developing and implementing integrated approaches to natural resource management which are efficient and consistent with sustainable development principles. LandCare is intended to ensure the sustainable management of agricultural resources in order to optimize production, food security and job creation. LandCare has established partnerships between the public sector, communities and the private sector. There are several themes which fall within the programme: WaterCare, VeldCare, SoilCare and JuniorCare.

92. Groups interested in implementing LandCare projects apply for funding through the Department of Agriculture. Successful proposals should be in accordance with the objectives of the National Agricultural Policy, the Water and Forestry Management Strategy, the Land Reform Programme, and the National Environmental Strategy.

93. For the fiscal year 2001-2002, an allocation of 25 million South African rand was set aside for the implementation of LandCare projects; under the WaterCare theme, 11 irrigation schemes were selected in four regions of the northern province of Limpopo. Those projects involved the holistic and integrated rehabilitation and restructuring of the irrigation systems. Fourteen projects, valued at approximately 4.6 million South African rand, were selected under the VeldCare project, and they benefited 545 communal farmers by clearing away alien invasive species and controlling bush encroachment. SoilCare projects in Eastern Cape and KwaZulu-Natal were valued at 7 million South African rand and covered seven projects related to soil conservation and the rehabilitation of degraded areas. Finally, three JuniorCare projects totalling 1 million South African rand were also implemented.

Biodegradable inputs reduce costs and pressure on the environment

94. The Federation of Free Farmers of the Philippines, a national farmers organization, has been successfully testing an organic rice programme in around 20 villages throughout the country. The programme aims at helping to reduce farmers' costs, particularly in terms of seeds and fertilizer, to rejuvenate and restore soil fertility, and to generate higher income from the sale of premium organic rice products. This project is also seen as a contribution of farmers to environmental sustainability in general, and to the reduction in greenhouse gas emissions in particular (through reduced petroleum-based fertilizer application and the use of

biodegradable inputs). The Federation of Free Farmers of the Philippines has been experimenting with biofertilizer technologies, such as nitrogen-fixing inoculants, which are less costly, more easily applied to plants and environmentally friendly. Ultimately, the Federation is working on the development of an environmentally sustainable farming approach, while providing farmers with higher incomes in terms of reduced costs of production, higher quality of their products and improved yields.

Alternative Land Use Services in Canada for the development of sustainable land management tools

95. In Canada, the vast majority of environmental management is done by individual farmers, ranchers and landowners. Alternative Land Use Services is a proposal for an agricultural conservation programme that taps into the opportunity to partner with local people and their communities to induce environmental change. This proposal, the first in its kind in Canada, recognizes the value of conserving and restoring Canada's natural capital, while also respecting and rewarding the important role that rural landowners play in environmental management.

96. Alternative Land Use Services is unique because it is incentive based. Farmers have always acted as land stewards and have provided ecological goods and services to Canadians. The programme proposes a fee for service concept, where the landowner is paid a fair price for the environmental benefits that he or she creates and maintains through a variety of land management tools, such as natural and ecologically sensitive lands, riparian areas or wetlands.

97. This programme would build local capacity for agricultural conservation. It is a national programme with a local focus. Farmers are in favour of Alternative Land Use Services as a conservation programme that offers practical long-term solutions. The programme will mobilize farmers, ranchers and landowners as well as conservationists to provoke a national discussion on the environmental contributions of agriculture and the ecological services that farmers provide. The Canadian Federation of Agriculture producers support the Alternative Land Use Services programme, which was developed by farmers as a practical solution to environmental issues. The programme is also trade neutral. Groups of supporters of Alternative Land Use Services in several provinces across Canada are currently working on pilot project proposals to test the programme as a national agri-environmental initiative. The first pilot was launched in Manitoba in November 2005.

IV. Lessons learned and new opportunities to expedite implementation

98. Even though there has been significant progress, much remains to be done.

99. First, the road to sustainable agriculture and sound rural development implementation strategies around the world needs to encompass participatory approaches. A farmer-centred approach to agriculture and rural development should prevail.

100. Second, farmers are doing a great deal to follow sustainable agricultural practices and to provide ecosystem services. These efforts should be better documented so that they can be scaled up and replicated in other regions and

countries. Further, farmers should receive incentive payments for the ecosystem services that they provide, since they benefit the whole of society.

101. The role of the Government has to be redefined in order to achieve this. Withdrawal of government support for agricultural services has destabilized rural areas and exacerbated the poverty problem. Governments need to re-engage with farmers, scientists and other stakeholders in order to exploit the full potential of agriculture to reduce poverty and conserve natural resources.